

30. Substantially pure QA-7 saponin purified from a crude Quillaja saponaria extract comprising one predominant peak which comprises 90% or more of the total area of all peaks of a chromatogram, excluding the solvent peak, and having a retention time of approximately 9-10 minutes when analyzed on reverse phase-HPLC on a Vydac C₄ column having 5 μ m particle size, 330 Å pore, 4.6 mm ID x 25 cm L in a solvent of 40 mM acetic acid in methanol/water (58/42; v/v) at a flow rate of 1 ml/minute.

31. The substantially pure QA-7 saponin of claim 30, wherein said saponin has immune adjuvant activity, and wherein said saponin is characterized by a carbohydrate content of about 35% per dry weight as assayed by anthrone, has a UV adsorption maxima of 205-210 nm, a micellar concentration of 0.06% (w/v) in water and 0.07% in phosphate buffered saline, and causes no detectable hemolysis of sheep red blood cells at concentrations of 200 ug/ml.

32. The substantially pure QA-7 saponin of claim 31, wherein said carbohydrate content has a composition comprising terminal rhamnose, terminal xylose, terminal glucose, terminal galactose, 3-xylose, 3,4-rhamnose, 2,3-fucose, 2,3-glucuronic acid and apiose.

33. A substantially pure QA-21 saponin purified from a crude Quillaja saponaria extract comprising one predominant peak which comprises 90% or more of the total area of all peaks of the chromatogram, excluding the solvent peak, and having a retention time of approximately 51 minutes when analyzed on reverse phase-HPLC on a Vydac C₄ column having 5 μ m particle size, 330 Å pore, 4.6 mm ID x 25 cm L in a solvent of 40 mM acetic acid in methanol/water (58/42;v/v) at a flow rate of 1 ml/minute.

34. The substantially pure QA-21 saponin of claim 33, wherein said saponin has immune adjuvant activity, and wherein said saponin is characterized by a carbohydrate content of about 22% per dry weight as assayed by anthrone, has a UV absorption maxima of 205-210 nm, has a micellar concentration of about 0.03% (w/v) in water and 0.02% (w/v) in phosphate buffered saline, and causes hemolysis of sheep red blood cells at concentrations of 25 μ g/ml or greater.

35. The substantially pure QA-21 saponin of claim 34, wherein said carbohydrate content has a composition comprising the monosaccharides: terminal rhamnose, terminal arabinose, terminal apiose, terminal xylose, 4-rhamnose, terminal glucose, terminal galactose, 2-fucose, 3-xylose, 3,4-rhamnose and 2,3-glucuronic acid.

36. A method of enhancing an immune response to an antigen in an individual comprising administration of an amount of the substantially pure saponin adjuvants from any of claims 29-35 to said individual in an amount sufficient to enhance the immune response of said individual to said antigen.

37. A pharmaceutical composition useful for inducing the production of antibodies to an antigen in an individual comprising an immunogenically effective amount of an antigen and a substantially pure saponin purified from a crude Quillaja saponaria extract as in any one of claims 29-35, wherein said amount of said substantially pure saponin is present in an amount sufficient to enhance the immune response of said individual to said antigen.

38. The pharmaceutical composition of claim 37, wherein said individual is a mammalian animal.

39. The pharmaceutical composition of claim 37, wherein said saponin is a mixture of two or more of the saponins.